USFS AVERY WORK CENTER (PWS# 1400087)
SOURCE WATER ASSESSMENT REPORT

March 18, 2002

State of Idaho
Department of Environmental Quality

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Idaho Department of Environmental Quality (DEQ) is completing the assessments for all Idaho public drinking water systems. The assessment for your particular drinking water source is based on a land use inventory within a 1,000 foot radius of your drinking water source, sensitivity factors associated with the source, and characteristics associated with either your aquifer or watershed in which you live.

This report, *Source Water Assessment for Public Water System USFS Avery Work Center (PWS# 1400087), located in Avery, Idaho*, describes the public drinking water system, the associated potential contaminant sources located within a 1,000 foot boundary around the drinking water source, and the susceptibility (risk) that may be associated with any potential contaminants. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this system. **The results should <u>not</u> be used as an absolute measure of risk and are not intended to undermine confidence in your water system.**

The USFS Avery Work Center drinking water system consists of one well. The well was drilled in 1986 and serves approximately 60 people during peak usage. The well is located approximately 100' from Avery Creek. A Groundwater Under the Direct Influence of Surface Water determination was made in June of 1999 and further monitoring was requested. Additionally, the construction of a reservoir north of the well resulted in surface water flowing around the wellhead. The well is monitored monthly for total coliform bacteria, as required by the USFS. The last positive sample was collected 1/14/02. The system's total coliform samples have been positive relatively frequently. The water system also samples for nitrate annually and nitrite every nine years. Both are at acceptable levels.

The well was assigned a high hydrologic sensitivity score. The well is located in an area of generally well-drained soil. A well driller's log does reveal a layer of solid rock above the water bearing strata found at a relatively shallow depth of 70-93'. This layer may provide some protection against contaminants moving underground.

The work center well was drilled to a total depth of 235'. The well uses a 6-inch casing that is .250" thick. The Idaho Department of Water Resources (IDWR) *Well Construction Standards Rules (1993)* require all public water systems (PWSs) to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works (1997)* during construction. Various aspects of the standards can be assessed from well logs. Table 1 of the *Recommended Standards for Water Works (1997)* states that 6-inch steel casing requires a thickness of 0.280 inches. The well was sealed to 18' with bentonite and 228' of 4-inch PVC liner was installed. The Forest Service has surveyed the water system to ensure proper maintenance. The well has not had any maintenance problems and is in good repair with an intact wellhead and sanitary seal.

The well is located outside of the 100-year floodplain, but is inundated with surface water originating at the reservoir located north of the well. The well's system construction score is moderate.

There are five potential contaminant sites located within the well's source water assessment area. The first site is a railroad dump, while the second site is an oil company. Sites three and five are city sewers and site four is the surface water flowing around the wellhead. In addition to the water flowing around the wellhead, the city sewers appear to encroach on the fifty-foot sanitary setback for public drinking water wells. These conditions have resulted in the well automatically receiving high susceptibility scores in the inorganic chemical and microbial categories and indicate an increased risk of contamination of the well. The well scored moderately in the volatile organic and synthetic organic chemical categories. A copy of the susceptibility analysis for your system along with a map showing any potential contaminant sources is included with this summary. Information regarding the potential contaminants within the 1,000-foot boundary have been summarized and included in Table 1.

Table 1.

SITE #	Source Description	Source of Information	Potential Contaminants[1]
1	Railroad Dump	Database Search	IOC, VOC, SOC
2	Oil Company	Database Search	VOC, SOC
3	City Sewer	Enhanced Inventory	IOC, Microbial
4	Surface Water	Enhanced Inventory	Microbial
5	City Sewer	Enhanced Inventory	IOC, Microbial

[1]IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Figure 1. Geographic Location of the USFS Avery Work Center Well

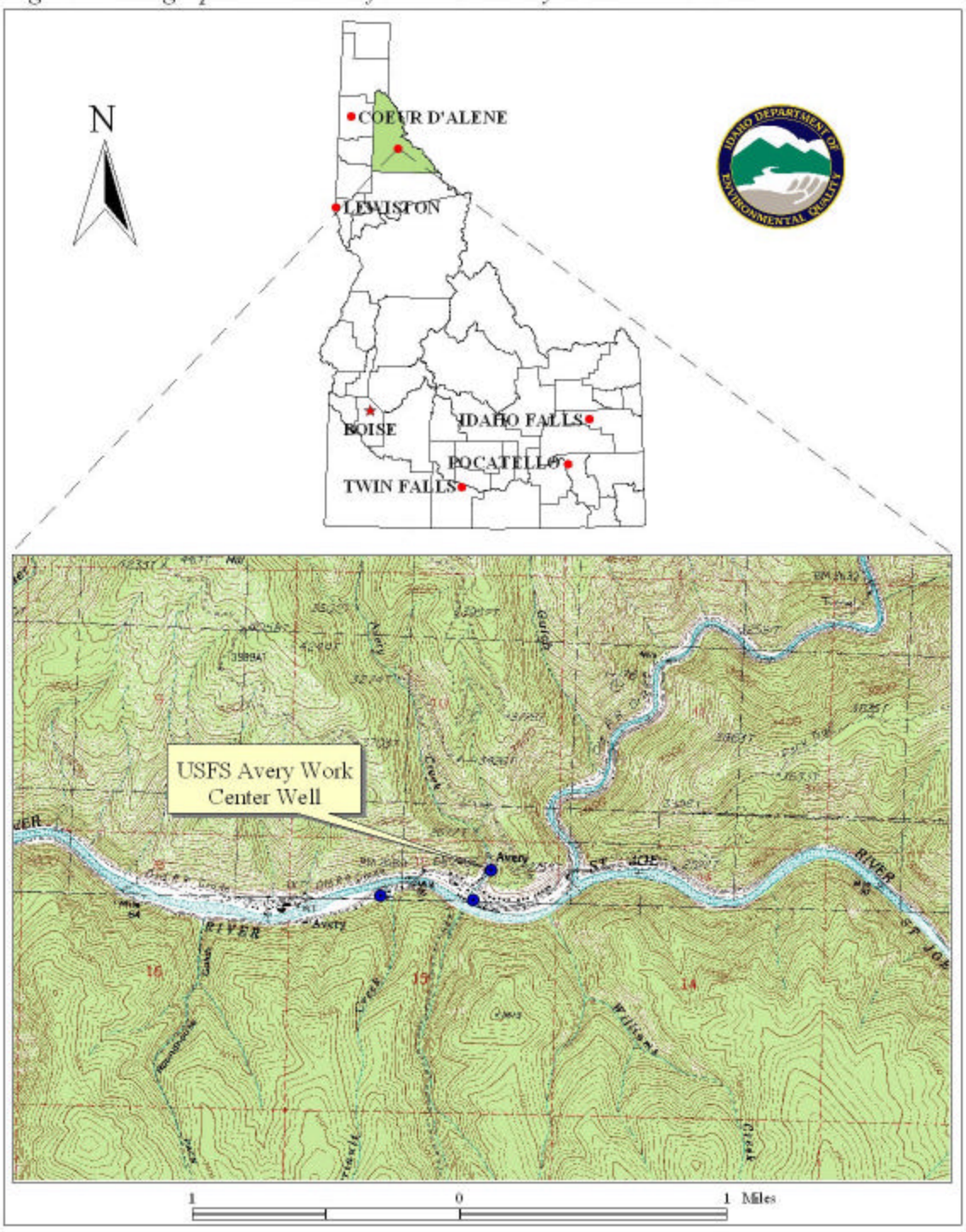
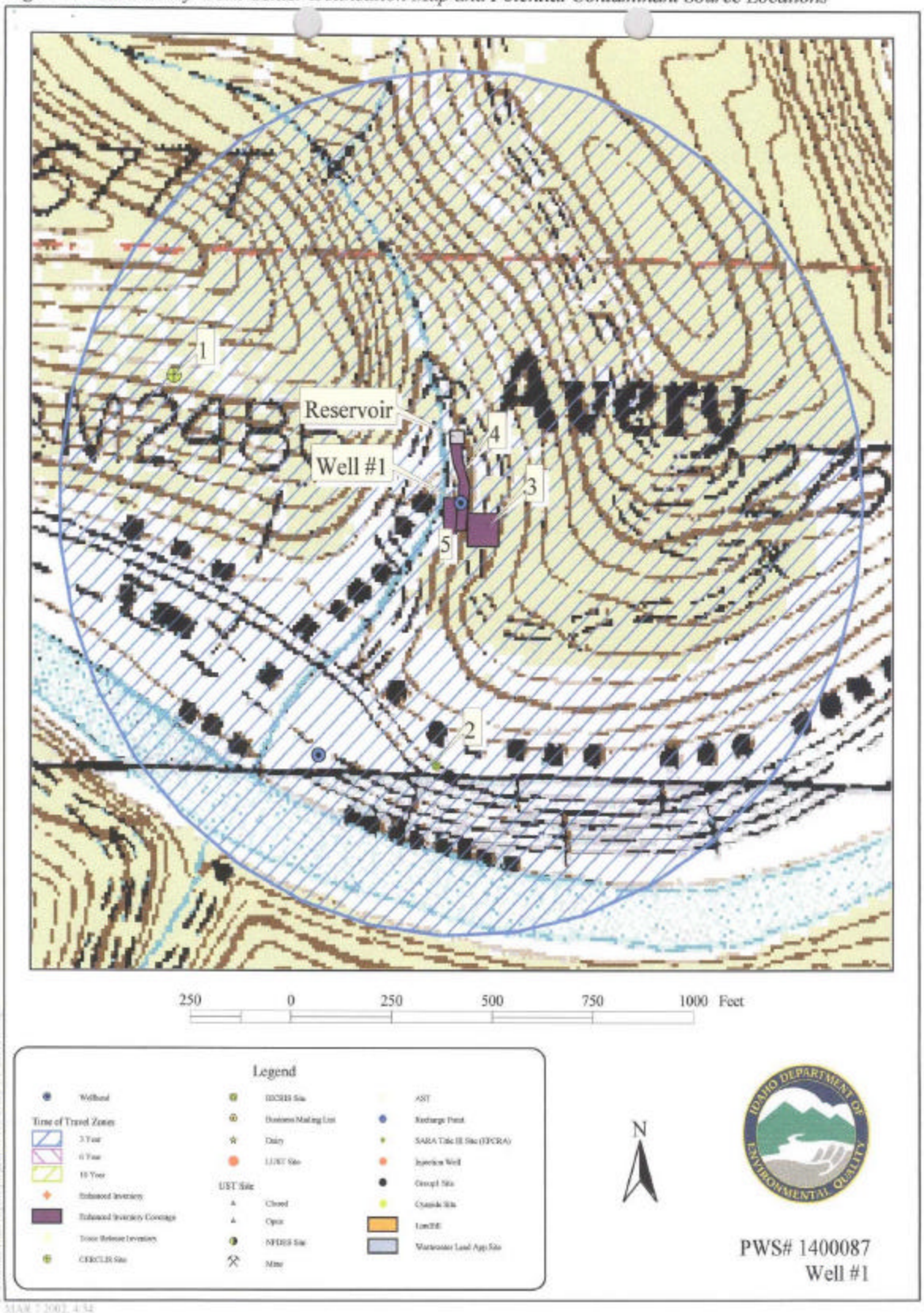


Figure 2. USFS Avery Work Center Delineation Map and Potential Contaminant Source Locations



This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

The USFS Avery Work Center should focus drinking water protection activities on implementation of practices aimed at improving the environment surrounding the wellhead. This might include diverting the surface water arising at the reservoir or building a barrier around the wellhead to keep surface water out. The Forest Service should also evaluate the distance between the wellhead and the city sewers to ensure that the sewers are at least fifty feet from the wellhead to maintain sanitary conditions around the well. In addition, a relationship should be developed with the city so that the city is aware of the importance of maintaining sewer operations in a manner that does not pose an excessive risk of contamination of the well. The Forest Service should consider developing a comprehensive drinking water protection plan for all of their wells that includes a public education component, potential contaminant site management measures and a contingency plan. Public education measures can be passive, like signs notifying the public that they are within a drinking water protection area, or interactive, like water festivals or hazardous waste collection drives. Potential contaminant site management will include the suggestions listed above. Additional management measures may be regulatory or non-regulatory. A contingency plan is necessary to outline the roles and responsibilities of system members during an emergency and should include plans for a future source if one becomes necessary. Drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

For assistance in developing drinking water protection (formerly wellhead protection) strategies please contact Shantel Aparicio or Sheila Bruning at the Coeur d'Alene regional IDEQ office at (208) 769-1422.

DEQ website:

http://www.deq.state.id.us

Attachment A

USFS Avery Work Center
Susceptibility Analysis
Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Ground Water Final Susceptibility Scoring

0-5 = Low Susceptibility

6-12 = Moderate Susceptibility

> 13 = High Susceptibility

Ground Water Susceptibility Report Public Water System Name : USFS AVERY WORK CENTER Well# : WELL #1

Public Water System Number 1400087 5/9/02 11:21:28 AM

1. System Construction		SCORE
Drill Date	10/3/86	
Driller Log Available	YES	
Sanitary Survey (if yes, indicate date of last survey)	YES	1999
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	YES	0
Casing and annular seal extend to low permeability unit	YES	0
Highest production 100 feet below static water level	NO	1
Well located outside the 100 year flood plain	NO	1
Total System Construction Score		3

2. Hydrologic Sensitivity		
Soils are poorly to moderately drained	NO	2
Vadose zone composed of gravel, fractured rock or unknown	NO	0
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	NO	2
Total Hydrologic Score		5

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	RURAL	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES*	NO	NO	YES*
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0

Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	1	2	2	0
(Score = # Sources X 2) 8 Points Maximum		2	4	4	0
Sources of Class II or III leachable contaminants or	YES	1	2	2	
4 Points Maximum		1	2	2	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		3	6	6	0
Cumulative Potential Contaminant / Land Use Score		3	6	6	0
4. Final Susceptibility Source Score		9*	10	10	8*
5. Final Well Ranking		High*	Moderate	Moderate	High*

*Source automatically scored highly susceptible in this category
due to the presence of this contaminant in Zone 1A (sanitary setback distance for public drinking water wells).

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund@ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (IDEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by IDEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.